Christopher R. Culpepper

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CAREER OBJECTIVE

To continue my career in Electrical or Computer Engineering: designing electronic hardware, working with RF devices, or creating embedded software, preferably in the aerospace or subsurface domain.

EXPERIENCE

Electrical Engineer *October 2019 - Present*

FTL Labs Corporation, Amherst MA

- Designed and built large li-ion battery for underwater applications, designed with safety in mind
- Developed and implemented battery test plan for pressure, electrical, thermal and capacity
- Designed interface electronics, analog piezo load cell interface, COTS LED module dimmer
- Designed and implemented acoustic threshold measurement system, with absolute volume SPL
- Designed PCB to expand IO in a ruggedized product, solenoid drive, 4-20mA, protected IO
- Created RF chain to sample RADAR magnetron TX pulses
- Reverse engineered commercial RADAR to implement our own control (Serial, GPIO, RF LNA)
- Reverse engineered commercial laser diode driver to implement circuit
- Designed control loop to keep laser diode at constant optical power over temperature

Senior Electrical Engineer (Previous Systems Engineer , Co-Op) *Coop 2013-2017, FT 2017-2019*

General Dynamics Mission Systems, Pittsfield MA

- Developed and executed evaluation and qualification tests for inherited hardware
- Performed integration and repair operations on legacy hardware
- Performed tasking at customer locations and pre-deployment locations
- Performed software and systems testing on high-integrity mission-critical software

Test Engineer Co-op *January 2016 - May 2016*

Space Exploration Technologies, Hawthorne CA

- Designed and built hardware to test bias-T HD cameras
- Created software to automate the creation of trouble reports

EDUCATION

Bachelor of Science, Computer Engineering

Rochester Institute of Technology, Rochester NY, Graduated May 2017

Digital Signal Processing	Cyborg Theory
Digital System Design	HW & SW Design for Crypto Applications

PROJECTS

24 Hours of Lemons Racecar

- Procured $500 car, built it into an endurance racecar
- Designed and built roll cage, selected performance components

FPGA SDR RF Exploration (in progress)

- Building FPGA SDR exploration system to learn RF, VHDL, DSP
- Initially using RF "lego" modules, transitioning to custom PCBs
- Created custom drivers for frequency generation, ADC, I2S
- Currently writing custom DMA SG drivers to send data to "real" computer for display

Yaesu VX-8 Battery

- Designed, built and tested a battery for a handheld Amateur Radio
- Designed a PCB that features USB-C charging, balancing and temperature monitoring
- Designed a 3D printed case featuring compliant clips, light pipes and a tight internal layout

Wideband Oxygen Sensor Controller

- Designed, built and programmed sensor controller that measured oxygen concentration
- Incorporated PID loops to keep a sensor at a constant temperature and oxygen concentration

Various Other Projects:

Motorcycle Speedometer	Racecar Rollcage and Endurance Prep
Metal Melting Foundry	Race Car Data logger and Comms Board

SKILLS & AWARDS

Eagle Scout	A+ Certified

Languages & Software:

C	AutoIt Automation Scripting
Kicad PCB Design Software	OpenSCAD and FreeCAD CAD Software
Linux	Visual Basic for Applications (VBA)
VHDL	DOORs Requirement Management
Python	Networking Equipment Configuration

PERSONAL INTERESTS AND HOBBIES

Amateur Radio Extra	Carbon fiber layup
3D Printering	Working towards pilot license
Photography (Analog, digital)	Licked thing that was in space